



User Guide and Assembly Instructions AGRIBOX

Type: Agribox Small - Agribox Medium - Agribox X



AGRILIGHT b.v.

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IP65

Dear Client

Firstly, we wish to thank you for choosing an Agrilight BV product. The Agriboxes are specially designed for switching lighting on and off in livestock pens. Agriboxes are durable and require very little maintenance. These instructions provide the necessary information for handling and installing your Agriboxes safely and correctly. We therefore recommend that you read the instructions carefully and keep them in a safe place.

In the event of doubt, please do not hesitate to contact your service technician or Agrilight BV for additional information.

Application

The Agribox constitutes part of the Agrilight range of products for the livestock industry and is designed for producing optimum lighting conditions in livestock pens (for beef-cattle, dairy-cattle).

Installation

It is important to note that the Agribox should be installed by a certified technician. If this is not done, the product warranty will be invalid.

In compliance with the instructions for installation laid down by Agrilight BV, all generally and locally applicable building and construction regulations should be respected and complied with.

Service parts

To ensure proper operation of the unit, only original Agrilight BV components should be used, or components of the same quality.

CE certification



With reference to the conformance certificate for the Agribox, the CE mark on the type label of the Agribox indicates that the product is in full compliance with EU consumer safety, health and environmental requirements.

Intended use

The Agribox is intended for the optimum control of lighting in livestock pens. Any other use is not in compliance with the intended use. Agrilight b.v. accepts no liability for damage or injury resulting from any use of the Agribox other than its intended use, i.e. for which it was developed and designed.

For your safety. Caution!

Agrilight BV attaches the utmost importance to the fact that the Agribox is operated and maintained in a manner that ensures the safety of the user.

Please follow the instructions below in order to ensure the safe and reliable operation of the Agribox:

1. Always read the user and instruction manual of the Agribox before installing.
2. Ensure that the persons responsible for installing and mounting/connecting the Agribox are familiar with the instructions and all other relevant information contained in the manuals before installing.

Please ensure before installing that all instructions are fully understood. This is the responsibility of the certified technician responsible for installing the Agribox.



230V AC Power supply

Components in the Agribox are connected to a power supply of 230V.



Safety instructions

Always follow and comply with the safety instructions of this manual.

If the safety instructions and warnings are not complied with, this may damage the installation and/or lead to serious personal injury or death.

EU declaration of Conformity:

Manufacturer: Agrilight b.v.

Address: Vlotlaan 560, 2681 TX Monster, Netherlands

Hereby certifies that the Agribox with type designation:

Agribox Small (single phase 20A 230V ~ 50Hz)

Agribox Medium and Agribox X (3 phase 20A 400V ~ 50Hz)

complies with European harmonized standards:

Safety requirements for electrical equipment measurement, control and laboratory use norm EN61010-1

EMC compliance accordance with standards:

EN55015, EN61547:1995 incl. amendment A1:2000, EN61000-6-2 and EN61000-6-3:2007

The Agribox complies with the IP65 standard if the connecting glands have been properly tightened by the user.

Monster, 2010 Agrilight b.v.

We retain the right to make amendments to the text, drawings and diagrams without any prior notification.

Unpacking and Inspecting

1. Carefully unpack the Agribox.
2. Inspect the contents of the package for any damage that may have occurred during transport.
3. In the event of damage, contact Agrilight BV immediately, with reference to the packaging documents. You are advised to discontinue the installation of the Agribox in the event of damage, even if the damage in question appears to be superficial or minor. In the event of damage, please consult Agrilight BV first, before you consider installing the Agribox.

Introduction and scope of delivery

The Agribox line is a range of control cabinets for connecting and controlling various types of AL2007 armature supplied by Agrilight. The cabinet has an IP65 value, which means that the cabinet is completely dust-free and spraywater-tight in all directions, provided that all connecting glands and covers are properly tightened and secured and the protection cover is closed.

No.	Description	Model	Number		
			Small	Medium	X
[1]	Agribox		1x	1x	1x
[2]	Feed-through sleeve (<i>are not used</i>)		4x	4x	--
[3]	Keys/spanners		2x	2x	--
[4]	Screw		1x	1x	--
[5]	Cable ties		2x	2x	--
[6]	Sealing caps		4x	4x	--
[7]	Trims/covering strips		1x	1x	--
[8]	Feed-through plug (<i>not used</i>)		1x	1x	--
[9]	Klemko twilight sensor, fixtures and manual in packaging		1x	2x	--
[10]	Moeller ETR2 (timer) manual		1x	--	--
[11]	Moeller Z-SDM1KWO (timer clock) manual		1x	--	--
[12]	Moeller PLC ME Easy manual		--	1x	--
	Agribox Manual (<i>not shown</i>)		1x	1x	1x

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<p>TYPE: Agribox Small</p> <p>The daylight function of the armatures can be switched on and off both manually and automatically with the timer and twilight control via the Agribox Small. Night-lighting can also be switched on and off manually via the Agribox Small.</p>	<p>TYPE: Agribox Medium</p> <p>The daylight function of the armatures can be switched on and off both manually and automatically with the timer and twilight control via the Agribox Medium. Night-lighting can also be switched on and off manually and automatically via the Agribox Medium.</p>	<p>TYPE: Agribox X</p> <p>The Agribox X is a slave model and can be connected to the Agribox Medium in order to extend the capacity of the Agribox Medium with two additional electrical groups.</p>
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Technische gegevens


Specifications	AGRIBOX		
Model	Small	Medium	X
Dimensions	400x320x125	400x320x125	270x180x170
Weight (complete)	3.35 Kg	4.00 Kg	3.30 Kg
Max. Light load	2x6x250W of 2x4x400W *	2x18x250W of 2x12x400W *	2x18x250W of 2x12x400W *
Max. C load	470uF/Phased	470uF/Phased	470uF/Phased
Max. Load Night-lighting	900W	900W	--
Max. power supply.	230V/50Hz/20Amax (1 Phase / N / PE)	400V/50Hz/25Amax (3 Phase / N / PE)	400V/50Hz/25Amax (3 Phase / N / PE)

* armature type: AL2007 (lamp type: High pressure sodium (HPS) of Metallic Halide (MH))

Installation




If the following instructions and safety warnings are not complied with, this may result in damage to the unit, serious personal injury or death.



- The Agribox may only be installed by a certified technician.
- Always block off any traffic in the vicinity where the Agribox is being installed before commencing with any work on the installation.
- Always turn off the power to the Agribox before opening the cabinet or carrying out service or maintenance on the Agribox. Ensure that the power supply is not turned on accidentally. To do this, a lock can be mounted to the red/yellow coloured main switch.
- Keep the direct vicinity free from animals and any internal transport whilst carrying out installation activities.
- Only use electrically insulated tools!

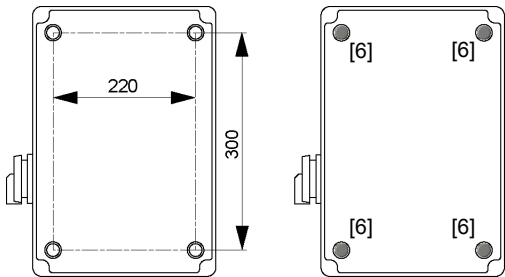
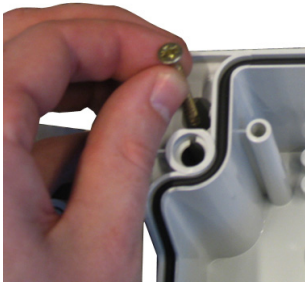
- Ensure that you do not confuse the phase, earth and null connections when connecting - this may result in life-threatening situations!
- Ensure that the power supply and voltage corresponds to the power supply and voltage required by the Agribox. These are clearly indicated on the cabinet sticker.
- When connecting up, consult the circuit diagram in this manual and always ensure that you comply with the legally applicable connecting requirements (e.g. NEN 1010 for the Netherlands).

The lighting plan shows the conditions that must be taken into account when installing. These instructions must be fully complied with in order to ensure uniformity and a proper light level.



Agrilight BV cannot be held liable for damage and/or injury resulting from improper mounting and installation.

Mounting the cabinet to the wall




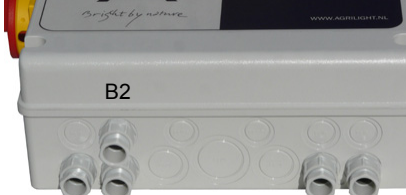

1. Remove the cover by unscrewing the 4 screws on the front of the cabinet with a 1.6 x 9 mm screwdriver.
2. Mount the cabinet to the wall with 4 screws, preferably in the corners. If the user chooses to mount the unit by screwing to the base plate, the sealing caps [6] included in the package must be used in order to ensure that the unit is water-tight.

Connecting power



Disconnect the power supply before you connect the Agribox!
Ensure that the power supply cannot be switched on accidentally whilst connecting the unit!

3. Feed the cables/leads through the glands into the cabinet and connect these according to the circuit diagram - see pages 6-8.

		
A B C	A B1 C D	A B C D
TYPE: Agribox Small A = power supply B = Klemko twilight sensor C = Armatures	TYPE: Agribox Medium A = power supply B1/2 = Klemko twilight sensor C = Armatures Group 1 D = Armatures Group 2	TYPE: Agribox X A = power supply B = Connecting lead Agribox Medium C = Armature Group 1 D = Armature Group 2
Gland feed-throughs: diam. of leads min. 11 mm, max. 14 mm.		

Operation

Main switch

The main switch is intended for switching the Agribox unit on and off and not for switching the lighting in the livestock pens on and off. When in use, always leave the main switch in the I ("ON") position.

1. Position **I** ("ON") = Agribox switched on.
2. Position **O** ("OFF") = Agribox switched off.



The main switch can be locked.

Always switch the main switch off (O = "OFF") before commencing with service or maintenance activities on the Agribox or lighting installation.

Always lock or secure the main switch, for example with the use of a padlock, to ensure that it cannot be switched on unintentionally!



Selector switches

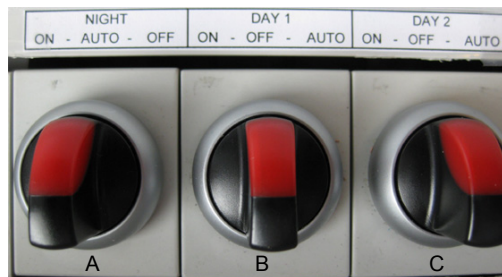
Agribox Small



A = Day – Off – Night switch

B = On – Off – Auto switch

Agribox Medium



A = On – Auto – Off – Night switch

B = On – Off – Auto switch group 1 (Day 1)

C = On – Off – Auto switch group 2 (Day 2)

Auto-switching

In order for the cabinet to operate automatically, the selector switch must be set to the "On-Off-Auto" "Auto" position. The timer clock switches the lighting automatically in conjunction with the Klemko twilight sensor.



Caution: When operating in Autoswitch mode, the "Day-Off-Night" switch must always be in the "Off" position.

Manual Switching

In order for the cabinet to be operated manually, the selector switch must be set to the "On-Off-Auto" "On" position. The "Day-Off-Night" button can then be used for manual switching:

- **Day:** daytime lighting ON
- **Off:** all lights OFF
- **Night:** night lighting ON

When the switch is set manually to the "On-Off-Auto" "Off" position, all lights will switch off.

The night-lighting does not switch on/off automatically; it must be switched on/off manually using the Day-Night switch.



Caution: When the switch is set to manual, there must be a delay of 10 minutes between switching off and switching on again. This is to prevent permanent damage to the lights if they were to be switched on within a 10 minute period.

Auto-switching 'Daytime lighting' (preferred setting)

Set groups 1 and 2 to "AUTO"

Daytime lighting of group 1 will switch on after the set value of twilight sensor 1 has been reached.

Daytime lighting of group 2 will switch on after the set value of twilight sensor 2 has been reached.

Manually switching 'Daytime Lighting'

Set the switch of one of the desired groups 1 or 2 to the "ON" position.

Group 1 will switch on immediately and if groups 1 and 2 are switched on together, group 2 will come on after a short delay of 50 seconds.



Caution: After switching a group off and immediately on again, there will be a pre-programmed delay of 10 minutes before the daytime lighting turns on again. This is to prevent damage to the lights.

Auto-switching "Night Lighting"

Set Night-Switch manually to the "Auto" position.



Caution: In AgriLED armatures, there is a delay of 10 minutes when switching between night-time lighting and day-time lighting.

Manually switching 'Night Lighting'

Set Night-Switch manually to the "On" position. The night-lighting will now switch on immediately. The night-lighting can be switched off again by turning the switch to the "Off" position.



Attention when using AgriLED armatures: if the unit is switched on shortly after the day-time lighting has illuminated, there will be an automatic delay of 10 minutes before the night-lighting is activated.



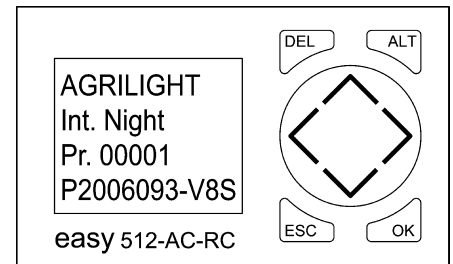
Attention: After switching on the night-lighting manually, this can be turned off again when leaving the livestock enclosure by setting the Night switch to the "Auto" or "Off" position.

AgriLED Red® Armatures

Application of AgriLED Red®

The cabinet is connected as standard for use with AgriLED Red® armatures, including red LED night-lighting. This includes a delay set to 10 minutes between switching the night-lighting on and off to prevent damage to the LEDs.

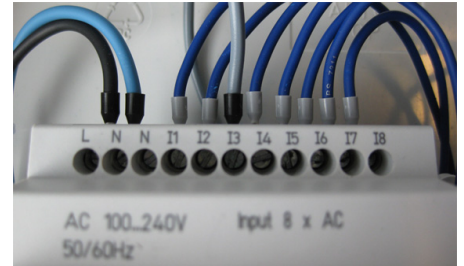
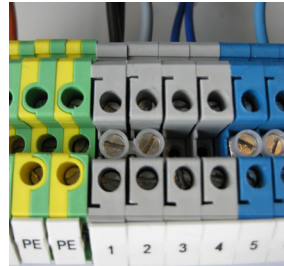
The display shows "Int. Night".



No AgriLED Red®

If another type of armature is used for the night-lighting (e.g. PL or TL fluorescent tube light armatures), then the night-lighting can be switched on and off automatically using clock time settings.

This can be changed by removing the grey wire between terminal 2 on the terminal strip and the PLC input 3 (I3).

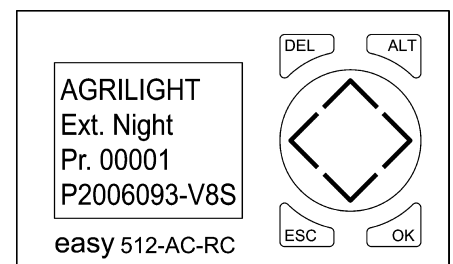


'Ext. Night' is now displayed on the PLC.

The night-lighting now switches on and off immediately at the preset time (night-time). However, the daytime lighting will be switched on in the morning with a short delay of 10 minutes if the twilight sensor(s) is/ are switched on.



If the AgriBox M is set to Ext. Night with the AgriLED Red® armatures connected, then the warranty on the armatures is no longer valid!



Settings



Klemko settings

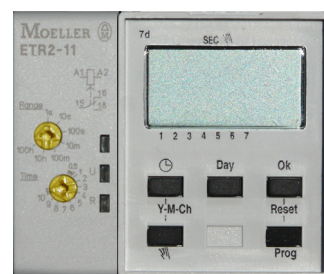
Setting the luminance level

The amount of light detected by the Klemko twilight sensor can be set by turning the [A] button on the front.

Turning the button towards the sun pictogram increases the sensitivity of the sensor.

Turning the button towards the moon pictogram decreases the sensitivity of the sensor.

The twilight sensor is activated as soon as the red LED [B] lights up.



Timer ETR2-11 (Agribox Small)

There must be a minimum of 10 minutes between switching the lights off and on again. This is to prevent permanent damage to the lights.



The Moeller ETR2-11 timer was set in the factory and may NOT be modified. If this is done, this will invalidate the warranty.

Timer Z-SDM/1KWO (Agribox Small)

Refer to Moeller Z-SDM/1KWO manual shipped with the Agribox Small.

Timer of PLC (Agribox Medium)

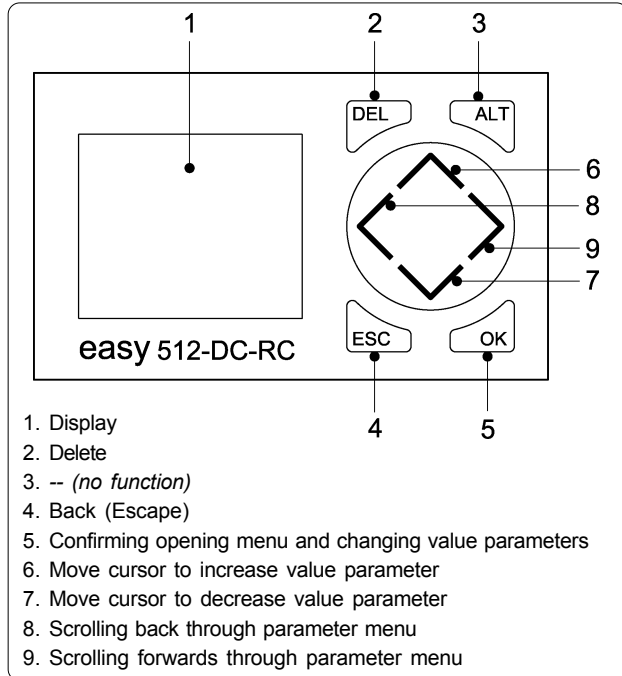
The Klemko twilight sensor will activate after 10 minutes. The lights will be activated as soon as the ambient light level is less than the desired setting (if the switch is on automatic).

PLC (Agribox Medium)

PLC Settings



No changes or modifications may be made to software - this renders the warranty invalid. Any changes made to the software can be read out, i.e. made visible if any changes have been made. The settings below do not fall under the above-mentioned software restrictions and may be set as desired.



Setting Time and Date

1. Press button
2. Press arrow to select 'Set Clock'
3. Press button
4. Press button again
5. Press button again
6. Set hours using arrow (+ 1 hour) and (-1 hour)
7. After setting the desired hour, press button to set minutes
8. Press (+1 min.) arrow and (-1 min.) to set minutes
9. Press button the time is now set
10. Press arrow to set date
11. Press button
12. Set the day parameter by using the arrow (+1 day) and (-1 day)
13. After setting the day parameter, use the arrow to set the month
14. Set the month parameter by using the arrow (+1 month) and (-1 month).
15. Press button
16. Press the arrow to set the year
17. Press button
18. Set the year parameter by using the arrow (+1 year) and (-1 year)
19. Press button



To leave the menu, keep pressing the button until Agrilight is displayed.

Clock program

The PLC has 3 pre-programmed clock programs
The fourth clock program can be freely programmed.

Options include:

Pr. 00000 = Clock program 1:
turn on lighting at 05:00 hrs, switch off at 21:00 hrs

Pr. 00001 = Clock program 2:
turn on lighting at 6.00 hrs, switch off at 22.00 hrs

Pr. 00002 = Clock program 3:
turn on lighting at 7.00 hrs, switch off at 23.00 hrs

Pr. 00003 = Clock program 4:
clock can be programmed as desired
[standard at 06:00 hrs-22:00 hrs].

These clock programs can be used to set seasonal lighting parameters.

Selecting clock program

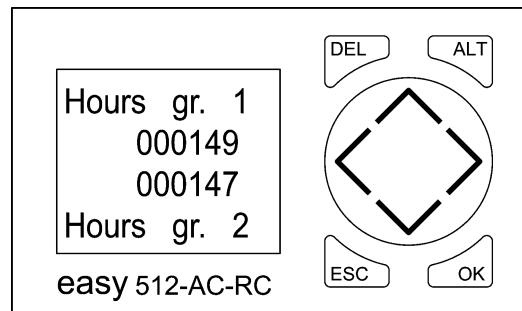
1. Press the arrow and keep pressed for 10 seconds.
2. Then press the arrow or and keep pressed until the correct program is selected.

Changing clock times to set new time in clock program 4.

1. Press
2. Press arrow and select parameter
3. Press
4. Select clock 4
5. Press arrow or to select days, hours and minutes
6. Press to changes settings
7. Press or to make changes
8. Press to confirm changes
9. Press to return to the previous menu

Operating hours counter

Press arrow to view operating hours. The unit automatically displays the number of operating hours of Group 1, Group 2 and the night lighting.



After 30 secs. the display will automatically return to the main menu.

Safeguarding program

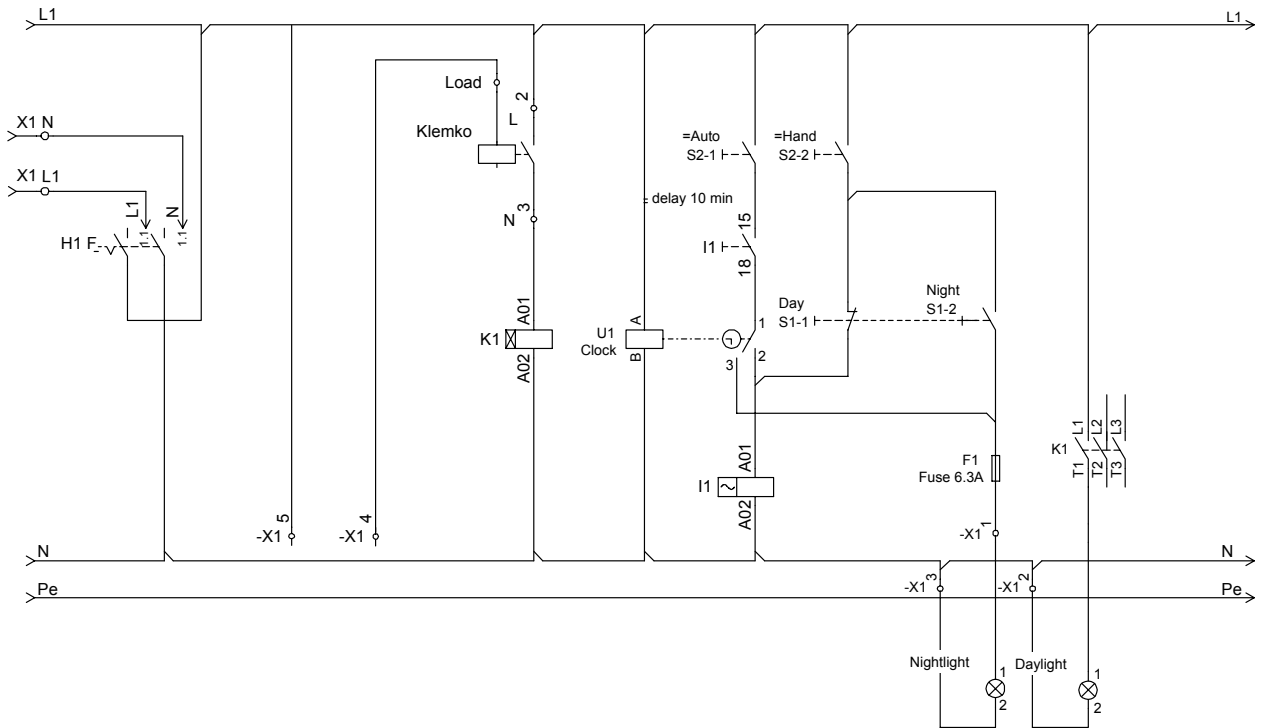
When switched on for the first time, it will take 10 minutes before the day-lighting can be switched on.

If the lights are on, the day-lighting can be switched off manually.

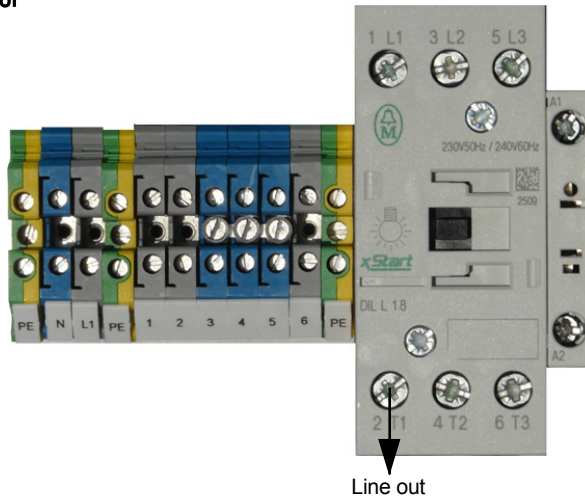
In emergency situations, always disconnect the unit from the power supply by using the yellow-red main switch.

Electrical control circuit Agribox Small

Main circuit



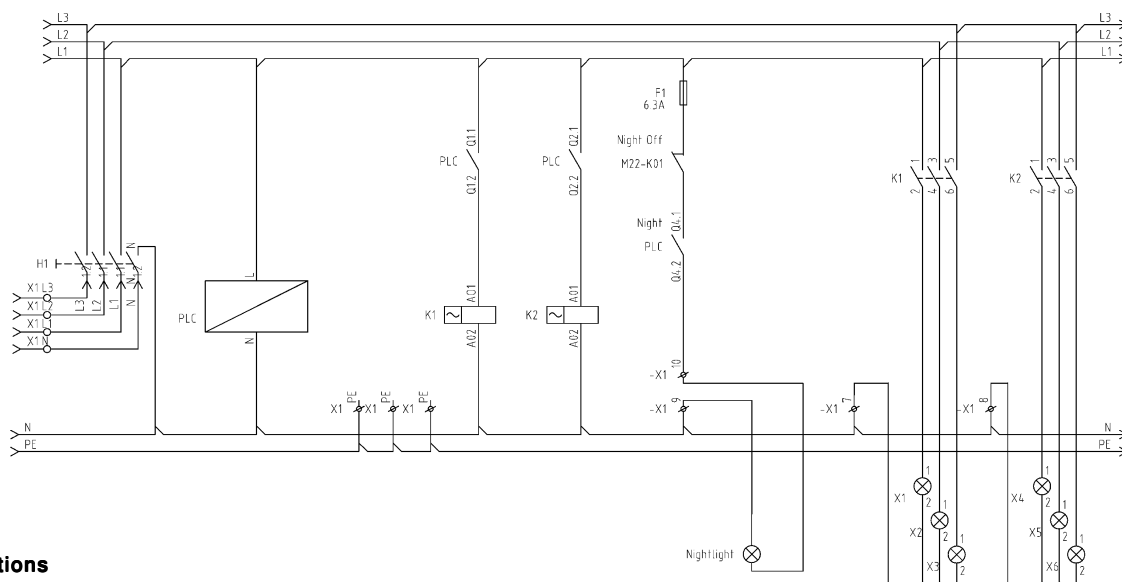
Connections of clamping rail and twilight sensor



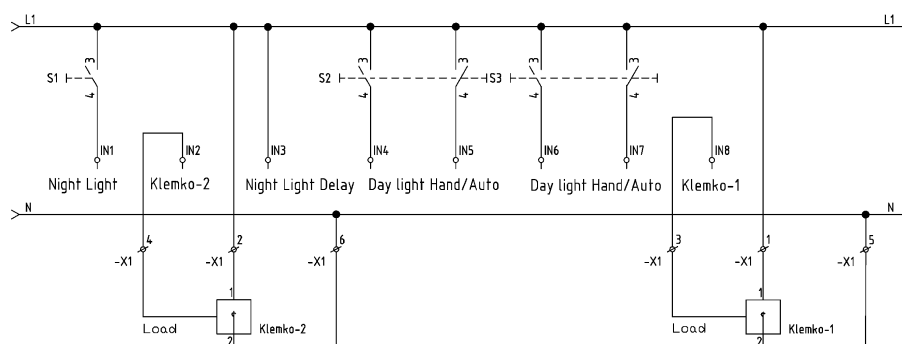
Clamp no.	Designation on sticker in cabinet	Description	Connecting Klemko twilight sensor <ul style="list-style-type: none"> Connect clamp no. 1 of the Agribox Small to terminal point L↓ of the twilight sensor. Connect clamp no. 2 of the Agribox Small to terminal point L of the twilight sensor. Connect clamp no. 3 of the Agribox Small to terminal point N of the twilight sensor.
PE	Line in PE	Earth connection input	
N	Line in N	Null [neutral] connection input	
L1	Line in L	Phase input	
PE	PE Line out	Earth connection input	
1	Klemko Load	Dimmer sensor output 'load'	
2	Klemko out L	Power supply twilight sensor 'Phase'	
3	Klemko out N	Power supply twilight sensor 'Null'	
4	Line out N	Null [neutral] connection output	
5	Night N	Night-lighting Null	
6	Night L	Night-lighting	
PE	Night PE	Earth connection night-lighting	

Electrical control circuit Agribox Medium

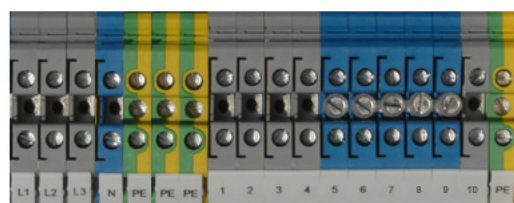
Main circuit



PLC-connections



Connections of clamping rail and twilight sensor



L1 L2 L3 L1 L2 L3
Group 1 Group 2

Clamp no.	Designation on cabinet label	Description
L1	Line in L1	Phase 1 input
L2	Line in L2	Phase 2 input
L3	Line in L3	Phase 3 input
N	Line in N	Null [neutral] connection input
PE	Line in PE	Earth connection input
PE	PE Line out 1	Earth connection output Group 1
PE	PE Line out 2	Earth connection output Group 2
1	Klemko-1 out L1	Twilight Sensor 1 Phase
2	Klemko-2 out L1	Twilight Sensor 2 Phase
3	Klemko-1 Load	Twilight Sensor 1 output 'load'
4	Klemko-2 Load	Twilight Sensor 2 output 'load'
5	Klemko-1 out N	Twilight Sensor 1 Null
6	Klemko-2 out N	Twilight Sensor 2 Null
7	Lamp N	Output Null group 1
8	Lamp N	Output Null group 2
9	Night N	Night-lighting Null
10	Night L1	Night-lighting Phase 1
PE	Night PE	Earth connection night-lighting

Connecting Agribox Medium to Agribox X

Group 1

Connect relay A1 (group 1) relay of the Agribox X to T1 of relay K1 (group 1) of the Agribox Medium.

Group 2

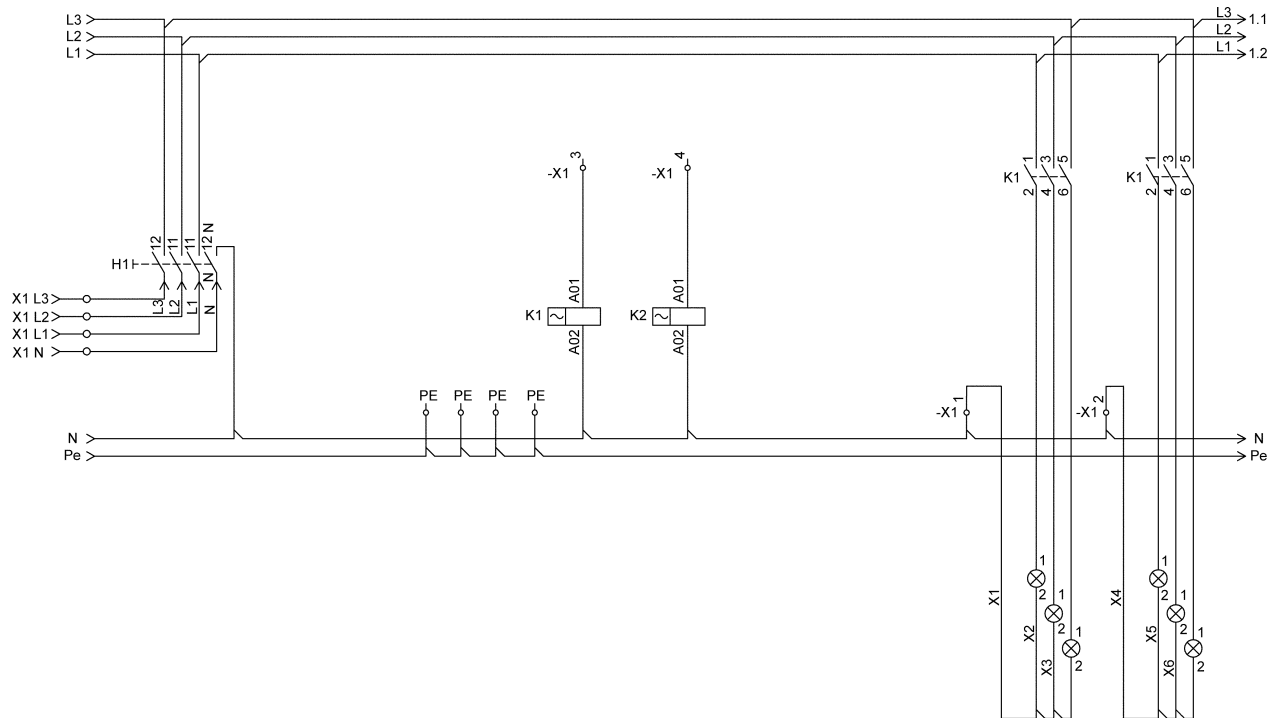
Connect relay A2 (group 2) relay of the Agribox X to T1 of relay K2 (group 2) of the Agribox Medium.

Connecting Klemko twilight sensor

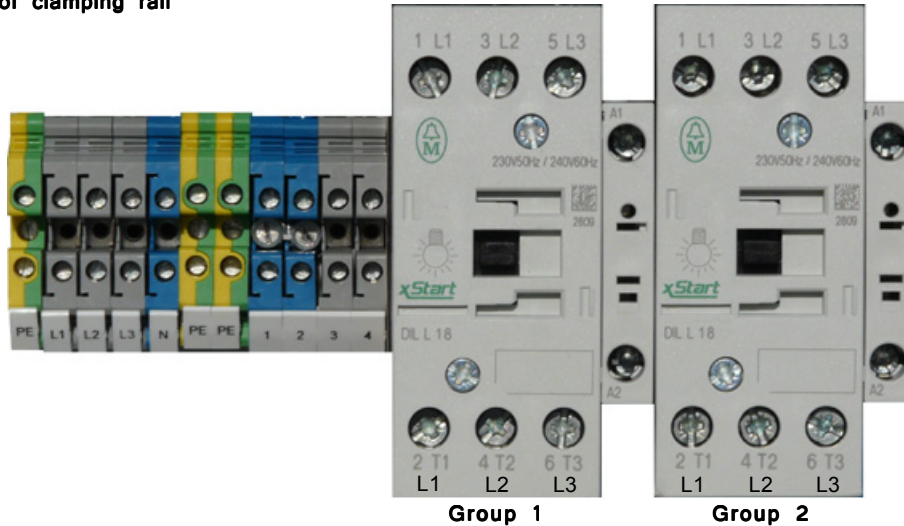
- Connect clamp no. 1 of the Agribox Medium to terminal point L₁ of the twilight sensor.
- Connect clamp no. 2 of the Agribox Medium to terminal point L of the twilight sensor.
- Connect clamp no. 3 of the Agribox Medium to terminal point N of the twilight sensor.

Electrical control circuit Agribox X

Main circuit



Connections of clamping rail



Clamp no.	Designation on sticker in cabinet	Description	Connecting Agribox X to Agribox Medium
PE	Line in PE	Earth connection input	Group 1 Connect relay T1 of relay K1 (group 1) of the Agribox Medium to relay A1 (group 1) of the Agribox X. Group 2 Connect relay A2 (group 2) relay of the Agribox Medium to relay A2 (group 2) of the Agribox X.
N	Line in N	Null [neutral] connection input	
L1	Line in L1	Phase 1 input	
L2	Line in L2	Phase 2 input	
L3	Line in L3	Phase 3 input	
PE	PE Line out 1	Earth connection output Group 1	
PE	PE Line out 2	Earth connection output Group 2	
1	Lamp N	Output Null group 1	
2	Lamp N	Output Null group 2	
3	Relay K1-A1	Relay control Group 1 (Medium)	
4	Relay K2-A2	Relay control Group 2 (Medium)	

Maintenance



Disconnect the Agribox from the power supply before performing maintenance on the Agribox!

Agrilight BV recommends that you have your Agribox serviced once a year by a certified technician to test operation and to check all fixtures and connections. In order to retain the amount of lighting, you are advised to check the condition of the lights and the sensor and to clean the armatures and the display of the twilight sensor.

Malfunctions



When checking malfunctions, be aware of the risk of electrically live components. Although the Agribox is designed with safety in mind and is earthed, hazards due to malfunctions can never be excluded. Only certified technicians are permitted to handle the electrical installation or to perform measurements on the unit.

Control Cabinet/Lighting malfunctions:

- Check that the Agribox main switch is in the I ("ON") position;
- If applicable: check that the Agribox X main switch is in the I ("ON") position;
- Check that the 3-way switch is not on the "OFF" position;
- Check that the display of the twilight sensor is not soiled or dirty;
- Check that power supply fuses and/or ceramic fuses of the Agribox;
- Ensure that there is a power supply available;
- Check and/or replace the light(s).

If the control still doesn't operate correctly:



Always disconnect the Agribox before opening the plastic cover (turn the main switch and lock it). Be aware of and prevent any accidental activation by others or by an automated control and/or dimmer switch. In the event of a malfunction, never touch the Agribox whilst the power supply is still connected or if the casing of the Agribox is damaged or wet.

- Check the wiring in the control cabinet(s).

CONDITIONS OF WARRANTY

1. If it appears that your product does not function well, even though you have used it in the correct manner and in accordance with the written user manual and assembly instructions, the product will be replaced free of charge within a period of one year after purchase. In order to claim this warranty the customer must submit the product invoice to Agrilight BV with the 1 year warranty period.
2. The product must be returned to Agrilight BV within 30 days following the occurrence of the defect or malfunction for the purpose of verification.
3. The product must be provided with a project name and sent to the following address:
Agrilight b.v.
t.a.v. Service dept.
Vlotlaan 412
2681 TV Monster - The Netherlands
4. When Agrilight bv sends the replacement parts you will receive an invoice that will be credited to your account when and if it can be verified that the malfunction of defect falls under the warranty.
5. If Agrilight BV has not received the defective product by return mail within 30 days of the invoice date, the warranty invoice will be treated as a sales invoice after which period the invoiced amount must be paid to Agrilight BV within 30 days.
6. The warranty does not cover the following situations for which the customer will be invoiced during the warranty period:
 - a. defects or damage resulting from fire, earthquakes, floods, lightning strikes, other natural disasters, as well as environmental pollution and problems related to power supply.
 - b. Defects resulting from sand, mud, dirt etc. entering the cabinet of the product.
 - c. Defects resulting from transport, accidents, shock and vibrations etc. following the purchase from and delivery of the product by Agrilight BV.
 - d. Defects resulting from negligence, carelessness or incorrect storage, improper maintenance etc.
 - e. Defects resulting from improper use (such as the use of the unit for purposes not listed in the user manual and/or assembly instructions etc.).
 - f. Defects resulting from (uncertified) repairs and modifications.
 - g. If the invoice cannot be submitted together with the product when warranty claims are made.
 - h. If changes have been made to the original purchase invoice or to the customer name on the invoice.
7. The liability on the part of Agrilight BV is restricted to the scope of this warranty and only includes the replacement and/or repair of the product. Agrilight BV accepts no liability for damages incurred directly or indirectly as a result of any defects in the product. Agrilight BV is not liable for expenses incurred as a result of disassembly and assembly/ mounting, or expenses incurred as a result of travel and accommodation.
8. Any damage resulting from transport or incomplete delivery must be reported to Agrilight BV within 5 working days. Any notifications received by Agrilight BV beyond this period do not fall within the scope of the warranty or warranty period.

LIABILITY

Agrilight BV states emphatically that it cannot be held liable for damages of any kind or magnitude, caused by non-compliance with the instruction in this manual or as a result of the non-compliance with the connecting and installing requirements according to NEN 1010. We also refer to our terms and conditions of delivery according to the conditions and requirements laid down by the Netherlands Metal Association and any additional warranty provisions of Agrilight BV. All technical modifications reserved.